PROVISIONAL INTELLIGENCE REPORT

PROJECTED POPULATION OF THE USSR 1950-75

CIA/RR PR-106
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CENTRAL INTELLIGENCE AGENCY

OFFICE OF RESEARCH AND REPORTS

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CIA/RR PR-106

(ORR Project 45.579)

NOTICE

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CIA/RR PR-106
(ORR Project 45.579)

PROJECTED POPULATION OF THE USSR, 1950-75*

Summary

The population of the USSR is expected to be approximately 300 million by 1975. The expected increase is 100 million, or 50 percent, above the 1950 estimate of 200 million people. This increase is greater than that expected in the US, where the 1950 population of 152 million people is projected to 214 million in 1975, or an increase of 41 percent. Two other projections of the Soviet population provide higher and lower population figures. The upper estimate is 316 million, and the lower is 280 million.

The number of potentially employable persons (15 through 59 years of age) is expected to expand from about 118 million in 1950 to about 175 million in 1975, an increase of 48 percent, or approximately the same rate as that for the total population.

The increase in employable males is expected to be more rapid than the total increase, as the presently distorted sex ratio (85 males per 100 females) approaches balance (94 males per 100 females) by 1975. The total male population will expand from 92 million to 146.5 million by 1975, or by 59 percent. Males in the employable ages (15 through 59 years of age), however, will increase from 52 to 86 million, or by 65 percent.

The abnormality of the present age-sex distribution is especially highlighted by changes in the number of males of prime military age (20 through 29 years of age). The number of these males is expected to increase from 17.1 million in 1950 to 23.9 million by 1975. This

* The estimates and conclusions contained in this report represent the best judgment of ORR as of 1 January 1955.

increase is only 40 percent, considerably below the increase in total male population (59 percent) and below the increase in males of employable age (65 percent). The lag in the increase of males of prime military age is due to the previous birth deficits, casualties resulting from two world wars, and forced agricultural collectivization during the 1930's.

The estimate of the number of survivors in 1975 of the 200 million persons living in the USSR in 1950 is derived from recent Soviet claims as to striking postwar reductions in the crude death rate and certain assumptions as to further reductions. The recent Soviet claim of a crude death rate in the USSR of 8.9 in 1952 (lower than that of the US) can be accounted for with certain reservations, and an allowance is made for a further decline of about 20 percent by 1975.

These death rate announcements, in conjunction with announcements as to the rate of natural increase, yield an estimate of the birth rate in 1950 which is also sure to decline. Different birth rate assumptions result in the three different projections referred to above. The projection used in this report employs a crude death rate of 11.6 in 1950, which will have declined to 9.4 by 1975, and a crude birth rate of about 27.7 in 1950, which will have declined to 21.3 in 1975. It is assumed that there will be no migration or war casualties.

I. Introduction.

The principal objective of this report is to provide provisional estimates of the growth of the population of the USSR from 1950 to 1975. No attempt is made to present these data as final and definitive. They do, however, give the general pattern of population change.

The intelligence materials in this report are important for providing population data which may be used in conjunction with intelligence research in estimating Soviet capabilities of industrial and agricultural production in 1975. The size of the population and the availability of manpower may be controlling factors in Soviet plans in distributing investments between agriculture and industry, in allocating labor, and in determining trade policies, and the rate of increase will cause complex production problems.

The starting point for the population projection developed in this report was a population pyramid (divided by age and sex) as of 1 January 1950 (see Figure 1*) which has been derived from prewar estimates of population in the USSR, 1/** based on the Soviet census of 1939 and various prewar censuses in annexed areas. This method produced the generally accepted total population figure of about 200 million for 1 January 1950. 2/ This process also yielded an estimate by sex for each 5-year age group born before 1939 (11 years of age and over in 1950; see Table 1***). Independent estimates of the population under 11 years of age on 1 January 1950 could be derived on the basis of enrollment statistics for grades 1 to 4 of the Soviet school system, in conjunction with fragmentary data on mortality and natural increase. The years after 1950 were estimated on the basis of the number of probable survivors among persons born before 1950 plus an estimate of the number of births during the years preceding the estimate and the proportion of these surviving.

II. Population and Manpower.

Three different projections, Series A, B, and C, of the 1975 Soviet population were made on the basis of different assumptions. 3/ Projection Series A and C yield a range of population from 280 million to 316 million. Projection Series B falls between these extremes, yielding a 1975 estimate of 302 million people. Analysis in this report is confined to study of the medium projection of population (302 million by 1975).

A. Total Population.

The growth of the Soviet population by age and sex groups, at 5-year intervals from 1950 to 1975, is shown in Table 1. In Figure 2,**** comparison is made of the populations of the US and of the USSR at 5-year intervals for the same period.

Table 1 and Figure 2 show that in 1950 the Soviet population comprised about 200 million people. 4/ The increment to 1975 would amount to about 102 million, or 51 percent more people than in 1950.

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* Following p. 4.
** For serially numbered source references, see the Appendix.
*** Table 1 follows on p. 4.
**** Following p. 4.

Table 1

Projection of the Population of the USSR by Age and Sex 5/
Five-Year Periods, 1950-75

Million People

Age	1950	1955	1960	1965	1970	1975
0 through 14	68.5	72.3	79.9	90.1	96.0	97.3
Male	34.5	36.6	40.6	46.0	49.0	49.8
Female	34.0	35.7	39.3	44.1	47.0	47.5
15 through 59	118.3	130.3	140.6	149.3	161.2	175.0
Male	52.0	58.7	64.7	70.0	77.3	85.7
Female	66.3	71.6	75.9	79.3	83.9	89.3
60 and over	13.2	15.2	17.6	21.2	25.1	29.4
Male	5.5	6.2	7.0	8.3	9.6	11.0
Female	7.7	9.0	10.6	12.9	15.5	18.4
Total population	200.0	217.8	238.1	260.6	282.3	301.7
Total male	92.0	101.5	112.3	124.3	135.9	146.5
Total female	108.0	116.3	125.8	136.3	146.4	155.2

This increase would occur at a slightly faster rate than the increase projected for the US, for which the 1950 population of 152 million is projected to 214 million in 1975, an increase of 41 percent. 6/ Thus the extent to which the Soviet population exceeds that of the US, which was 48 million in 1950, will increase to 88 million in 1975.

B. Labor Force Potential.

Persons in the age group from 15 through 59 are considered to constitute the largest group of potential workers. The manpower in these ages in the USSR, according to data in Table 1, was about 118 million people in 1950, or 59 percent of the total population.

Figure 1

POPULATION OF THE USSR BY AGE AND SEX
1950 and 1975
(In Millions)

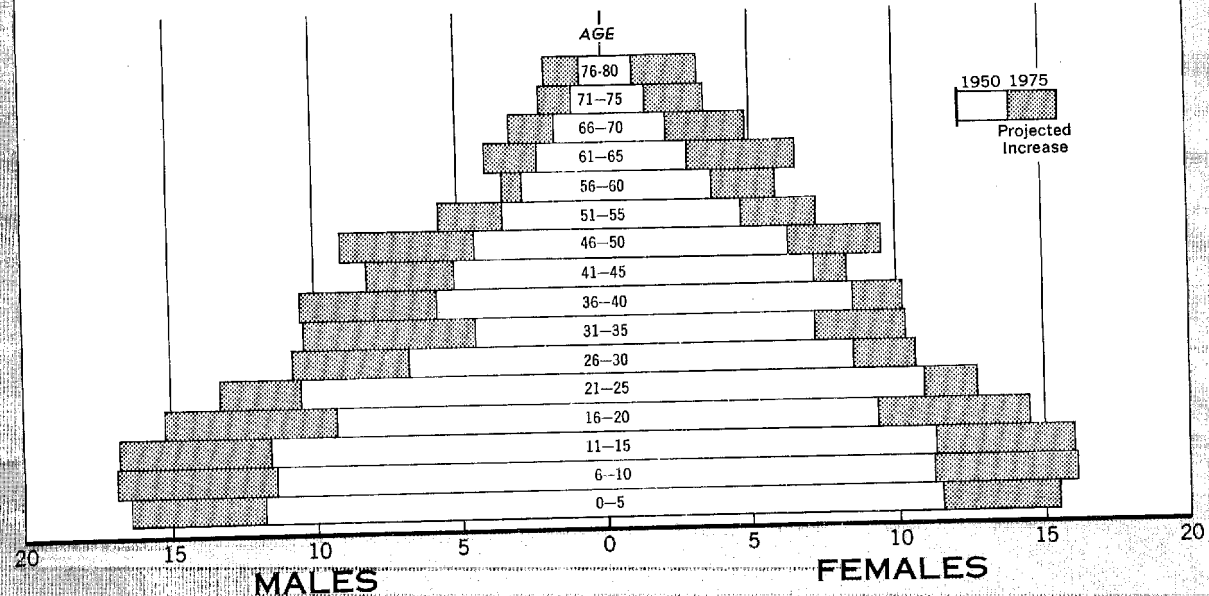
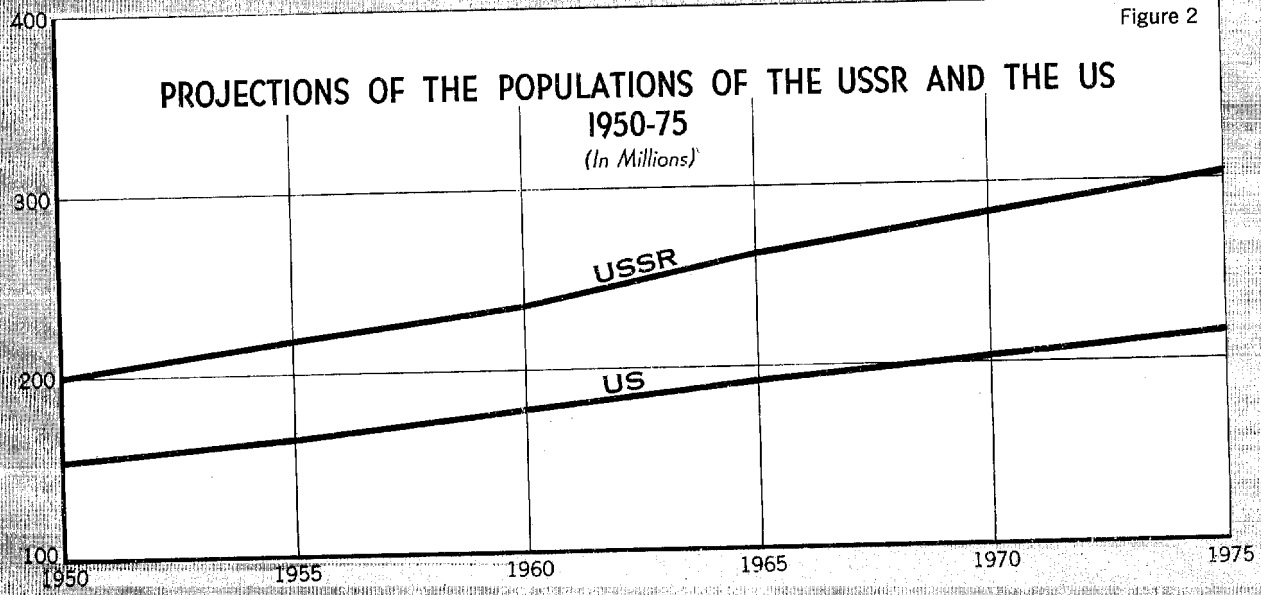


Figure 2

PROJECTIONS OF THE POPULATIONS OF THE USSR AND THE US
1950-75
(In Millions)



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This total is expected to climb to 175 million by 1975, at which time 58 percent of the total population will be potentially employable. The increase would amount to about 57 million people -- that is, about 48 percent more potential workers would be available in 1975 than in 1950. It follows, then, that if the current spread between the rate of increase in production and the rate of increase in labor productivity does not widen greatly by 1975, 7/ supply of labor available in 1975 should be adequate for a substantial expansion in the economy.

Not all the potentially employable persons will work in 1975. Actual employment* in the USSR in 1950 comprised only about 47 percent of the total population. 8/ Some of the persons aged 15 through 59 were not working. Most of these undoubtedly were women; older persons approaching the upper years, 50 to 60; and persons over 15 in school. On the other hand, some persons under 15 and over 60 were employed.

Since relatively more able-bodied males will be available for work in 1975 than in 1950, some reduction in the proportions of women and of older people who work is possible. Probably about 45 percent of the total population will be in the civilian labor force by 1975, compared with 47 percent in 1950.

The addition, then, of about 100 million people to the 1950 total population by 1975 would involve an increment of about 45 million workers actually in the civilian labor force. Calculated from the base of 1955, the increase in labor force actually at work would constitute about 38 million workers.

C. Military Manpower Potential.

Table 2** gives a projection of military manpower potential in the USSR by 5-year intervals from 1950 to 1975 for males, using the ages 20 through 29 as prime ages for military duty. The probable number of males of these prime military ages is contrasted with the total number of potentially employable males in the 15 through 59 age group by 5-year intervals.

The estimated number of males available for prime military duty in the USSR will increase from about 17 million in 1950 to about 24 million in 1975, or by about 7 million. The increase is about 40 percent

* Including forced labor but excluding the military.
** Table 2 follows on p. 6.

Table 2

Number of Males of Military Age
Compared with Number of Males of Employable Age,
Number of Total Males, and Total Population in the USSR 9/
Five-Year Periods, 1950-75

Million People

Year	Males of Military Age (20 through 29)	Males of Employable Age (15 through 59)	Total Male Population	Total Population
1950	17.1	52.0	92.0	200.0
1955	19.1	58.7	101.5	217.8
1960	19.9	64.7	112.3	238.1
1965	21.6	70.0	124.3	260.6
1970	21.4	77.3	135.9	282.3
1975	23.9	85.7	146.5	301.7
Percent increase				
1950-75	40.0	65.0	59.0	51.0

above the 1950 level and is therefore less than the increase in total population (51 percent); less than the increase in total male population (59 percent); and less than the increase in male population in the employable ages, 15 through 59 (65 percent). In actual numbers there is only a slight increase from 1955 to 1960 and an actual decrease from 1965 to 1970.

The comparatively disadvantaged position in the number of males of prime military age (20 through 29) is due to the depressing effects of two world wars and of forced collectivization during the 1930's on birth and death rates and on the sex ratio among their parents. In 1975 the males of prime military age (20 through 29) will be those who were born during 1945-55 to parents in the reproductive ages (20 through 39), who themselves had been born during the 1916-35 period. Large birth deficits, reducing the potential number of these parents and especially

of male parents, resulted from World War I and from forced collectivization. The persons who were born during the period 1916-35 were further decimated by very high infant mortality rates during World War I and by collectivization. Those who then survived infant mortality were subjected to starvation and other debilitating conditions as children during collectivization 10/ and to high military and civilian losses during World War II. Thus the groups which reached the child-bearing age from 1930 to 1950 were drastically reduced. The military potential in 1975 will not have increased, therefore, as rapidly as increases in other sectors of the population.

III. Vital Rates.

The projection of population to future dates is based on assumptions in the trend of vital rates -- that is, birth and death rates. These rates may be observed in Table 3.*

A. Death Rates.

The survival rates from 1950 to 1975 were estimated from death rates computed on the basis of recent Soviet announcements. The decline since 1940 is described by the following statements: the mortality rate (presumably in 1950) "is half that of 1940" 11/; the death rate** (presumably in 1953) is "8.9 per thousand" 12/; the infant mortality*** rate (in 1950) "is less than half that in the latest prewar years." 13/ Mortality in 1953 is 51 percent in comparison with 1940 and less than one-third of that in 1913. 14/

The first two statements must be taken in conjunction to be interpreted correctly. The meaning of the 8.9 figure is also important because the Russians are using it quite extensively in their propaganda to indicate a lower crude death rate than that in the US as was shown in a speech by T.V. Ryabushkin and remarks by other Soviet and Satellite delegates at the World Population Conference at Rome in September 1954. The first statement as to the relationship between the

* Table 3 follows on p. 8.

** Statistically the mortality rate (or death rate) is the number of deaths per 1,000 inhabitants.

*** The infant mortality rate is the number of deaths under 1 year of age per 1,000 births in the same year.

Table 3

Population Rates Used in the Projection of Soviet Population 15/
1950-75

Population Rates	1950	1975 (Projection Series) A	B	C
Population in millions	200.0	315.9	301.7	280.0
Crude birth rate (number of births per 1,000 population)	27.7	27.1	21.3	19.0
Crude death rate (number of deaths per 1,000 population)	11.6	9.4	9.4	9.8
Sex ratio (number of males per 100 females)	85.2	94.8	94.4	94.4
Expectation of life at birth, males (age)	54.7	62.4	62.4	62.4
Expectation of life at birth, females (age)	57.9	66.0	66.0	66.0

mortality rate of 1940 and that of 1950 may be approached as follows: although there is no official figure for the 1940 death rate, it is generally agreed that it was probably 20 percent above that of 1938 (19.4). 16/ This would indicate that the 1940 rate was about 23.3, which, if halved in 1950, would give 11.6 for the latter year.

A drop from 11.6 in 1950 to 8.9 in 1953 indicates a sharp decline in the 3-year period, which is not impossible. The 8.9 figure is, however, subject to the following qualifications: it probably represents a favorable year; otherwise it would not have been published, and it is highly probable that it is a "free" population figure and does not include deaths in slave labor camps, which would increase the rate.

The fourth statement -- that the 1953 rate was 51 percent of 1940 -- is not consonant with the 8.9 figure and either was a loose approximation or referred to a rate calculated on a different base, since, if the 1940 rate of 23.3 is correct, this statement would imply a rate nearer 11.6 than 8.9. It is for these reasons that the death rates used in projecting the population started with 11.6 in 1950.

If the peculiar age and sex distribution of the USSR is considered, it appears that the claimed reduction in mortality is as much due to change in the age-sex structure of the population as to progress in public health. There was in the Soviet population in 1950 an excess of some 15 million females, mostly between the ages of 25 and 50, and female death rates are lower at every age than those of males. The comparison of the age structure of the USSR with that of the US (for 1950 in both countries) is shown in Table 4.

Table 4

Comparison of Soviet 17/ and US Age Structure
1950

Age Group	Percent in Group USSR	US	Mortality Characteristics
0 through 4	11.60	10.8	High
5 through 24	42.55	29.9	Very low
25 through 59	39.25	47.1	Moderate but rising with age
60 and over	6.60	12.2	High to very high

Thus 43 percent of the population of the USSR is between the ages of 5 and 25, when death rates are very low. Only 30 percent of the US population is in this age bracket and 70 percent in the ages where death rates are higher. In fact, if the population of the USSR were distributed by age as is that of the US, the Soviet crude death rate would be 16 instead of 11.6.

It is also reported that the death rate of children in the USSR under 1 year of age had by 1950 been reduced by more than one-half from that of the last prewar years. It would appear from this that the infant death rate in the USSR in 1950 was from 85 to 95, or about 3 times the infant death rate in the US at present and at about the level of the US infant death rate in 1920. (For methodology, see 18/.)

This statement about the infant death rate, together with the age distribution and the general crude death rate of 11.6 in 1950, leads to the inference that death rates above age 1 had improved only slightly from 1938 to 1950. 19/ This also is not too surprising, since it is probable that the population still includes people whose vitality had been weakened by war and hardships of confinement in prison camps.

Thus, if the Soviet specific rates of 1938 20/ are revised by reducing the death rate for children under 1 year of age by 50 percent and by decreasing the rates above 1 year of age only slightly, a pattern of rates is obtained which, when applied to the estimated age distribution, yields a general rate of 11.6 as estimated above.

The 1975 estimate of a population of 302 million is computed on the basis of a series of age specific death rates which will produce a crude total death rate of 11.6 in 1950 and a rate of 9.4 in 1975. This series was derived by allowing for a further drop of 50 percent in the infant death rate and a smaller decline in the ages above 1 year. 21/ Although the death rates at each age decline markedly, the total death rate does not drop so rapidly, since by 1975 a slightly larger proportion of the Soviet population will be above age 40 and a much larger proportion will be male.

B. Crude Birth Rates.

The 1950 birth rate (the number of live births per 1,000 population) may be determined on the basis of the natural increase and the death rate. The latter has been discussed above. The rate of natural increase is derived from two official pronouncements: (1) that the annual net increase (as stated in November 1951) amounts to more than 3 million persons 22/ and (2) that the net increase during a 3-year period, presumably for 1948-51 (but possibly for 1949-52), amounted to 9.5 million people. 23/ It may be concluded that about 1950 the annual net increase in population varied from 3 million to 3.5 million people and that the rate of natural increase is therefore about 15 to 18 per 1,000 population. 24/ If the death rate of 11.6 is added to these rates, a range of birth rates is obtained of the order of 26.6 to 29.6 births per 1,000 population. An estimate of 27.7 births per 1,000 population, as shown in Table 3,* is thus a distinct possibility for the crude birth rate for 1950. 25/ This estimate represents about a 28-per-

* P. 8, above.

cent decline in the crude birth rate of 1938 of about 38.3 births per 1,000 population, and it continues the long-run decline in the birth rate from 1930, when it was over 40 births per 1,000 population, and from the eve of World War I, when the birth rate was 45. 26/

Expectations as to the size of the birth rate by 1975 depend on numerous factors, not the least important of which is the sex ratio. In 1939 the ratio was 92 males per 100 females, 27/ in 1950 it was 85, and by 1975 it is expected to approximate 94. 28/

The sex ratio in the procreative ages (20 through 39) is more important. This sex ratio was 77.5 males per 100 females in 1950, as shown in Table 5.* Not until 1965 will the sex ratio of males to females in this age group approach an equal balance. The current low sex ratio in these ages is undoubtedly partly responsible for the current low point in the general crude birth rate, 27.7 births per 1,000 population. The incarceration of men in labor camps is also associated with the low sex ratio, and as long as these camps are operated on a large scale, they will continue to depress the birth rate.

It must be recognized that, as the sex ratio approaches balance (about 1965), there will be a tendency in the sex ratio to boost the birth rate upward. Fewer women, proportionately, will remain childless.

There is considerable argument for expecting the birth rate in the USSR not to fall below the 1950 level. The history of countries undergoing industrialization shows that in the initial stages of development the birth rate falls fairly rapidly as the population loses its predominantly agricultural ways of life -- that is, as the ways of city life become dominant. After these initial stages have been passed, however, the birth rate fluctuates, more or less depending on the prosperity or depression within the country. Thus the birth rate in the US in the 1920-24 period averaged 22.8 births per 1,000 population, fell to 17.2 during the 1935-39 period, rose to a new peak of 25.8 in 1947, and fluctuated between 23.5 (for 1950) and 24.5 (for 1952) for the 1948-52 period. 29/

Declines in the birth rate in the USSR are not, however, unlikely. The urbanization and industrialization of the country are expected to continue. The influence of concentration camps on available males will

* Table 5 follows on p. 12.

Table 5

Projection a/ of the Population of Males and Females of Procreative Age in the USSR 30/
1950-75

Year	Males and Females of Procreative Age (20 through 39) (Million People)		Sex Ratio (Number of Males per 100 Females)
	Males	Females	
1950	27.2	35.1	77.5
1955	29.9	35.0	85.4
1960	36.1	38.0	95.0
1965	39.8	40.2	99.0
1970	40.4	40.2	100.5
1975	44.6	43.8	101.8

a. Projection Series B.

continue to be felt. Low birth rates are characteristic of many European countries. West Germany has a birth rate of about 16 per 1,000 population; Belgium, about 17; France, about 20; Norway, about 19; and Britain, about 16. 31/

The assumptions that the Soviet birth rate would remain constant from 1950 to 1960 and would fall thereafter approximately by 25 percent to 1975 constitute the bases of the Projection Series B estimate of 302 million population in the USSR by 1975.* In 1975 the birth rate would be 21.3 births per 1,000 population, as shown in Table 3.**

* As in the case of mortality rates, a set of age-sex specific rates (in this case, birth rates) was applied to the age-sex structure of the population pyramid, particularly for the reproductive ages, for each 5-year period. The 25-percent decline in crude birth rates between 1960 and 1975 is approximately the same rate of decline assumed in projections of the Soviet population prepared by the Office of Population Research, Princeton University. 32/

** P. 8, above.

It should be re-emphasized that many of the estimates cited are projections and as such are vulnerable to the common error of economic forecasting. To some extent the base population of 1950 is a projection from the 1939 census of the USSR and other censuses of annexed areas. With respect to the total 1950 estimate, however, a close check can be obtained from estimates based on election returns. The figures for dates subsequent to 1950 are projected on certain assumptions as to the age and sex distribution in 1950 and as to birth and death rates by age in the future. Although this is standard procedure and is fairly satisfactory for short periods, a projection for as long as 25 years is subject to wide error. Slight errors in the base or in the assumed trends compound rapidly as time passes, resulting in a substantial range of error before the end of the period. The present trends are so pronounced, however, that this projection, even if subject to a 10-percent error, indicates the magnitude of the problems underlying the projected massive increase in the population of the USSR.

IV. Capabilities and Vulnerabilities.

A. Capabilities.

The association of an increase in economic and military capabilities in the USSR with substantial increases in population is obvious.

The increase in the working age segment is at about the same rate as the total increase. Under these circumstances and with continued increases in productivity, substantial expansion in both the absolute and the per capita volume of production is feasible. Such growth can be attained without danger of an over-all shortage of labor.

The more rapid increase of males than of females assures the more efficient manning of heavy occupations and the efficient use of female workers in light industry, trade, and the professions.

A 40-percent expansion in the number of males 20 through 29 years of age, even though not so rapid as that of the total population, insures a substantial increase in the capability for mounting a large military effort.

B. Vulnerabilities.

1. Change in Population Trends.

The vulnerabilities inherent in a rapid population increase are related to the problem of the extent to which the consumer goods segment of the economy can be adjusted to the population trends. The Russians were not under the same pressure to expand the consumer goods industries in the 1940's as at present. Because of heavy war losses, the population of the USSR increased less than 5 million from 1940 to 1950, whereas the expected increase is about 38 million from 1950 to 1960. Thus, until 1950, the needs of the expanding population were not so compelling. Likewise, up to the time of the death of Stalin, the planning of the USSR tended to maximize the development of heavy industry and minimize the needs of the people. It is significant that the public announcements calling attention to population growth which have been cited in the previous sections were made soon after the death of Stalin and soon after the onset of more rapid numerical increase.

At the same time that these public statements acknowledged awareness of the volume of population increase, promises were made to raise the level of living of the people. This means an increase in per capita consumption, or, in other terms, it means that the physical volume of production of consumer items must expand faster than the increase in population. Failure to live up to this promise would produce disaffection in the masses and leave the regime more vulnerable to popular agitation.

The expansion of the production of manufactured consumer goods such as clothing, household furnishings, and household equipment can be paced ahead of population growth by reallocations of productive facilities which would not seriously affect continued expansion in other industrial sectors. However, the comforts which are considered elemental -- food and shelter -- present more serious difficulties, especially since these have been relatively more neglected in the past.

2. Urban Housing.

Urban housing is already in short supply because of past failures of construction organizations to live up to plans. Thus the agencies for the production of building materials and the construction organizations are faced with a problem which will be aggravated by substantial increases in the urban population.

The production of adequate urban housing in the future will, in all probability, require the diversion of construction materials, manpower, and equipment for some years from industrial projects of low priority.

3. Agriculture.

The rationalization of agriculture to feed 100 million additional mouths will probably prove difficult. The extent of this difficulty is highlighted by the record of the war and postwar period. From 1938 to 1952, population in the USSR increased by about 6 percent, a rate roughly comparable to the rate of increase in production of the ten basic agricultural commodities.

The production of foodstuffs suffered by reason of the fact that some of the most rapid increases in agriculture were in the commercial crops. As a result, the caloric content of the diet in the USSR declined from 1938 to 1953.

This trend has forced the Soviet rulers to reverse their previous policy of assigning low priorities to agriculture. Several possibilities are open for correcting this deficiency or at least ameliorating it. All of them, however, require substantial reorientation of plans and heavy investment in agriculture.

Three important measures internal to agriculture might be adopted: expansion of the number of hectares in crops, shifting in the crop pattern, and increasing the yields of crops and of livestock. Expansion of the number of hectares in crops should, by itself, increase the total volume of production. This expansion would undoubtedly involve the cultivation of more marginal land areas where yields would eventually be low. These areas would be better adapted to grain production, and since labor costs could be reduced through increased use of machinery, the total volume of grain production might be increased with profit above the cost margin.

Considered by itself, the present program of bringing 30 million hectares of new lands into cultivation will be sufficient to increase per capita consumption only for the short run (that is, for the next decade). If it is assumed that the yield per hectare in the new lands will approximate the average for the old lands (which is uncertain), and if it is assumed that none of the grain produced will

be fed to animals (which is also doubtful), then at the end of 9 years the production of grain will have increased about 28 percent. The population, however, will have increased about 14 percent, allowing about a 12-percent increase in per capita grain consumption. After this time, the continued growth of population will cause a fall in per capita production from this source. Thus the present new land program alone is not sufficient over the long run. To maintain per capita production at even the modest level of 12 percent above the present, it will be necessary to make further heavy investments in other new areas or in raising yields on the old areas. This calculation applies only to grain and does not take into consideration the increasing need for meat, dairy products, and vegetables.

The second measure would be to shift the crop pattern. With more marginal land in grain, some of the older cultivated better yielding crop land could be diverted to the increased production of fruits, vegetables, and certain technical crops (for food consumption). These crops, especially fruits and vegetables, yield much more heavily in physical volume than do grains. Hence a slight proportional increase in area in these crops would mean a much larger increase in production, and total physical volume of production would undoubtedly increase by means of the shift of the crop pattern.

These changes and increases in crop production probably would facilitate increases in the size of herds in animal husbandry and in the production of meat and dairy products. They would undoubtedly improve the Soviet diet (a) by expanding per capita caloric intake and (b) by increasing the proportions of fruits and vegetables, of vegetable oils, and of meat and dairy products eaten per person in the USSR.

Increases in the yields of crops and of livestock would require increased investments, not only in agriculture but also in industry. For example, the use of increased volume of commercial fertilizers would surely increase yields of crops. These increases would mean larger outlays for agriculture but also for industry in the construction of new plants for the production of increased volume of fertilizers. Increases in the quantity and quality of field crop machinery probably would facilitate increases in yields by improving precision and timeliness in agricultural field operations and thus by reducing losses. These changes would involve costs to agriculture and also to industry in the production of plants and in the distribution of the increased volume of machinery to field husbandry. Increases in the quantity and quality of

animal husbandry machinery and electrical equipment and installations might improve livestock yields by better processing of feeds, watering of stock, and care of animals. These increases also would involve investments by both agriculture and industry.

Increased yields might be obtained through the adoption of improved and scientific practices in field and animal husbandry, such as in the use of better seed varieties and in the expansion of the number of better breeding animals. These improvements would require additional outlays and investments in the experimental activities and installations of agricultural experiment stations.

It is clear that, in order to increase yields in agriculture, investments and construction not only in agriculture but also in industry would have to be expanded. In industry the increased investment and construction would be directed toward fertilizer plants, machinery and equipment plants, and the work of experimental stations.

Other changes in investment and construction by nonagricultural agencies would increase the consumption of agricultural production. This investment and construction would be associated with processing, storage, and distribution of the increased agricultural production. At the present time, much of the agricultural produce for sale on the market by the kolkhozy is processed for sale at home on the kolkhozy. The same is true of the produce sale by the kolkhozniki from their private plots and herds. The produce must then be carted to town and sold in kolkhoz markets, sales booths of state and cooperative stores, or on delivery routes of clientele of the kolkhozniki. The problems of processing, storage, transportation, and distribution of surplus farm produce in the USSR would seem to involve great waste of the food actually produced in Soviet agriculture.

It seems clear that improved processing, better road nets and means of transportation, better storage facilities (including refrigeration), and progressive distribution systems would improve the consumption of agricultural products. Increased investment and construction in these facilities would relieve the peasants from much of the time, labor, and costs for carrying on time-consuming operations, many of which in the US are no longer the farmer's responsibilities.

Current developments relieving peasants in the USSR of some of these responsibilities are (a) transportation of bulk grain from the

Eastern USSR harvest fields by truck by the Ministry of Procurement; (b) drying of moist grain at procurement points by the Ministry of Procurement; and (c) contracting of sales by consumer cooperatives with kolkhozniki for their individual plot products.

On the whole, it would appear that it is probably within the range of capability of the Soviet economy to expand the production of manufactured consumer goods, housing, and food products at a rate faster than the growth of population. This, however, cannot be done without some sacrifice of the plans for rapid development of other sectors. The attainment of this goal probably will be at the expense of the industries which contribute most directly to the growth of the war potential. Evidence of the emergence of such a pattern was found in the 1954 budget. Allocations announced for the fiscal year indicate substantial increases in investment and allocations to agriculture and the consumer industries, increases to heavy industry, and allocations for the maintenance and procurement for the defense establishment 9 percent less than the planned 1953 expenditures. Although the 1955 Budget reverted to lighter increases in consumer manufacture, the emphasis on agriculture continued.

APPENDIX

SOURCE REFERENCES

This report relies principally on eight sources for the most important data. The first is the International Population Statistics Section, US Bureau of the Census, which provided the population projections. The methods used are consistent with predecessors in the demography of the USSR, notably Frank Lorimer, in The Population of the Soviet Union: History and Prospects, 1946. This report synthesizes the results of many other sources cited separately.

The Kulischer report is a basic study providing birth and death rates, rates of natural increase, and estimates of population added during World War II, important for this report.

The Lorimer study constitutes the basic departure for historical studies of the Soviet population. Although time and critical analysis of specific areas have disclosed weaknesses since its publication (in 1946), it carries a wealth of data and information on Soviet population including the 1926 census.

Statements by Beriya, Malenkov, and Mikoyan are the only original Soviet sources available providing data from which birth and death rates and rates of natural increase may be calculated in the postwar period. The prewar death rate for all elements of the population in 1938 is derivable only from Lorimer.

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Evaluations, following the classification entry and designated "Eval.," have the following significance:

Source of Information	Information
Doc. - Documentary	1 - Confirmed by other sources
A - Completely reliable	2 - Probably true
B - Usually reliable	3 - Possibly true
C - Fairly reliable	4 - Doubtful
D - Not usually reliable	5 - Probably false
E - Not reliable	6 - Cannot be judged
F - Cannot be judged	

"Documentary" refers to original documents of foreign governments and organizations; copies or translations of such documents by a staff officer; or information extracted from such documents by a staff officer, all of which may carry the field evaluation "Documentary."

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this report. No "RR" evaluation is given when the author agrees with the evaluation on the cited document.

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